REMARKS

Claims 1 - 20 are in the application and are presented for consideration. By this Amendment, Applicant has made changes to each of independent claims 1, 2 and 15. Other changes to improve the form of the claims have been presented.

Claims 12-14 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

By this amendment, Applicant has amended claims 13, 14 and 12 to address the issues that have been raised. It is Applicant's position that the claims as presented are clear, definite and fully conform with the requirements of the statute.

Applicant requests that the Examiner consider prior art based on the examination which has occurred in the parallel European Patent Application. It is believed that the claims as presented fully patentably define over all prior art including prior art cited in the European patent proceeding.

The parallel European patent EP 1 556 190 was granted in 2005 and was maintained in an opposition proceeding in the granted form. Although the specification is in German, one set of claims is in English such that the English wording of the granted claims may be considered. These claims were granted based on the following prior art. It is requested that the Examiner consider this including the following discussion.

The Publication sensors allow windscreens to be inserted "on the fly" (John Mortimer) relates to a Ford Motor Company Plant that uses robots with gripper-mounted specular

reflection sensors to locate the windscreen aperture insert the windscreens. The system uses a light beam to control the operation. When the beam is broken by an on-coming car body the windscreen insertion program begins. Sensors mounted on the robot gripper frame are connected to a computer that uses the information to calculate the distance of the sensors from a predefined feature of the car body around the windscreen aperture. The reference fails to disclose the combination of features claimed including continuously conveying the workpieces and machining (including actions such as joining) carried out by the robots at their stationary positions.

U.S. 4,670,974 discloses a windshield insertion system for a vehicle on the moving conveyor apparatus.

U.S. 3,744,032 discloses a stationary based program manipulator arrangement for continuously moving workpiece.

GB 2 312 876 discloses a method of assembling a motor vehicle with a robotic installation of windscreen and roof.

JP 11-34946 discloses a body welding line for automobiles.

Patent Abstracts of Japan Publication No. 2000-289852 discloses a processing system with a conveyor to carry containers at random.

The prior art references as a whole including those cited in European Patent Office proceedings fail to teach and fail to suggest the combination of features according to the invention. Most importantly, the references fail to teach and fail to suggest multiaxial robots at a stationary position which perform machining and/or joining operation on workpieces that

are continuously conveyed with the operations carried out during the forward movement of the workpieces.

Claims 1-3,6-9 and 11-20 have been rejected under 35 U.S.C. 102(b) as being anticipated by Dunne et al. (US. Patent 3654616).

US 3,654,616 (Dunne et al.) does not show several features of the main claims 1, 2 and 15.

Dunne discloses a start-stop conveyor (20) which does not work continuously but is moving step by step (see claim 17). For the machining the conveyor and the work pieces come to rest so there is no synchronisation of the movement of the robots and the movement of the conveyor or the work pieces, respectively body shells. The robots do not work on the fly. Furthermore the sensing device (50) only senses the particular type of car body which is being presented to the associated manipulator apparatus for a particular spot welding operation (see column 3, line 21 to 26). There is no sensor system detecting movement and sensing the position of the work pieces as claimed. The sensing device (50) is actuated by means of dogs or other actuators which are positioned on the conveyor (20) and move therewith whereby these dogs are initially set to a desired position corresponding to a particular type of car body when the car body is initially deposited on the conveyor (20) (see column 3, line 26 to 33). Furthermore Dunne et al. does not show a control system which controls the conveyors as well as the robots.

Claims 1, 2 and 15 highlight important differences between the invention and the prior art as a whole, including Dunne et al. Each of the claims highlights the important feature that

the workpieces are conveyed continuously and are machined by the robots during the forward movement. In this regard, the term machined is used in its broader sense, including for example joining operation such as welding. Based on the continuously moving workpieces there is a synchronization of the movements of the robots with the conveying movement. This is based on a detecting of the movement and position of the workpieces. These features are neither taught nor suggested by the prior art as a whole. In particular, the features are not taught by Dunne et al. According to the invention the synchronization is performed by the control device. This may be an overall control system, namely a common control system or it may be parts of the individual robots. The synchronization includes a control of the conveyor as well as a control of the robots. In particular, the parts of the multiaxial robot are controlled as to each of the axis based on the stationary position of the robot base with each of the robots being provide along the path of the continuously operating conveyor. The robots have an adapted program which enables the stationary robots to work on a moving workpiece, namely this is working on the fly. It is important that the robots are positioned stationarily and adapted to the movements based on movements at the axis relative to a moving workpiece.

The features of the invention are very different from the start/stop conveying which occurs with Dunne et al. (see also for example column 2, line 22 and claim 17 of Dunne et al.). In Dunne et al. the conveyor is clearly not a continuously moving conveyor and more particularly, there is no joining or other machining operation which is carried out by stationary multi-axial robots along the path of the conveyor wherein the machining or joining occurs during the forward movement of the workpieces, namely during the movement of the

workpieces provided on the conveyor.

The sensing devices of the prior art and in particular the sensing device 50 of Dunne et al. do not provide the features required by the claims. As pointed out, sensor 50 acknowledges which body shell is in front of the robot, based on a preestablished arrangement for the sensor to detect this. Based on the particular body shell, a program is selected. The program operates on the workpiece with the workpiece of the stationary position. This is very different from what is claimed. According to Dunne et al. there is no sensing device for sensing the movement of the body shells, namely movement of the workpieces. And there is no control for controlling the robot and controlling the conveyor as claimed. The prior art and in particular Dunne et al. cannot continuously perform machining or joining during forward movement of the workpieces. Accordingly, the Dunne et al. reference does not anticipate the claims as presented. It is requested that the rejection be reconsidered.

Claims 4,5 and 17have been rejected under 35 US.C. 103(a) as being unpatentable over Dunne et al. (US. Patent 3654616).

Applicant respectfully requests reconsideration of this rejection as the Dunne et al. reference fails to teach and fails to suggest the features of claims 2 and 15. Further, the Dunne et al. reference does not render the subject matter of any of the claims obvious. Dunne et al. does not provide teachings or suggestions which render the subject matter obvious. As noted above, the Dunne et al. Reference fails to teach and fails to suggest important and critical features according to the invention.

Claims 11,13,14 and 20 are rejected under 35 US.C. 103(a) as being unpatentable over

Dunne et al. (US. Patent 3654616).

As noted above, Dunne et al. fails to teach and fails to suggest the features of claims 2 and 15. Dunne et al. does not provide any teachings or direction with regard to changing the features as disclosed by Dunne et al. to achieve the combination of features as claimed. The claimed machine plant includes a combination of features including a sensor system not disclosed by Dunne et al. as well as a conveyor means and control system cooperating with multi-axial industrial robots which are clearly neither taught nor suggested by Dunne et al. In particular, the control system according to the invention controls the conveyor as well as the robot based on a sensing of the movement in position of the workpieces and controls machining and/or joining operations such that the robot performs these during the movement of the workpieces on the continuously operating conveyor section. Such a synchronization based on moving workpieces and sensing the moving workpieces as well as joining or machining the moving workpieces is clearly not obvious based on the teachings of Dunne et al. Accordingly, reconsideration of the rejections is requested.

Favorable consideration of the claims as now presented is requested. Favorable action on the merits is requested.

Respectfully submitted
for Applicant,

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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE IS HEREBY REQUESTED TO CHARGE SUCH FEE TO OUR DEPOSIT ACCOUNT 13-0410.

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